

Some New and Little-known Heteroptera from the Western United States.

By J. R. DE LA TORRE BUENO, White Plains, N. Y.

When Professor J. M. Aldrich made his Western trip last year to look for Packard's *Ephindra californica*, he most kindly offered to endeavor to get me some specimens of Uhler's *Gerris robustus*, originally described from Clear Lake, California. He was successful not only in his own particular quest, but also in securing the long-lost *Gerris*, and together with that a number of land forms which he most obligingly permitted me to work up for him. They follow with appropriate comment. The species, it should be noted, are typically Western with two exceptions, viz: *Harmostes reflexulus* Say and *Brochymena 4-pustulata* Fabr.

Notonecta indica Linné.

A long series from Garfield, Utah, and Lake Elsinore, California, received through Prof. J. F. Abbott, who has the *Corixas*, and some labelled Smaller Soda Lake, Nevada. These are very interesting habitats, as the lakes are salt or alkaline, thus tending to show that *Notonecta* is not necessarily a fresh water insect.

Acanthia xanthochila Fieb.

Lake Elsinore, California; Soda Lakes, near Hazen, Pyramid Lake, and Winnemucca Lake, Nevada; Garfield, Utah.

This is a most widespread species, and is practically Holarctic in its distribution. The twelve specimens taken at these various places are typical.

Acanthia coriacea Uhler.

Brigham, Utah. One specimen.

Acanthia polita Uhler.

Garfield, Utah. One example.

Acanthia sp. (near *saltatoria* L.).

Highland Springs Lake. Three specimens.

Gerris gillettei L. & S.

=*Limnotrechus productus* Uhler. Hem. of Colo.

One female specimen from Garfield, Utah, on brackish water. This agrees in every particular with the original description and with the type in the collection of the Colorado Agricultural Experiment Station of Fort Collins, kindly loaned to me for study by Prof. C. P. Gillette. This is the first authentic record of the species since it was first described, and serves to establish its character as a good species. Its chief superficial character separating it from *Gerris* (*Limnotrechus*) *marginatus* Say, lies in the anal cerci, which in *marginatus* are short and comparatively stout, while in *gillettei* they are long, attaining the extremity of the abdomen and comparatively slender.

Gerris robustus Uhler.

Four apterous males and one female, and one winged male and one female, from Highland Springs, California. Prof. Aldrich writes thus about the locality: "The springs that give the name to the place come out a short distance from the sanatorium, and I ran down there with my net. There are perhaps twenty springs, all carbonated that I saw, and they make quite a little stream. On this there were a few skippers, and I got half a dozen, all short winged but large. These were all I could get for you. They were collected about ten miles from Clear Lake, and as near as I can remember they were the only skippers I saw on the trip."

It may be readily seen from the preceding that while not from the very place whence Uhler got his single female type, it was sufficiently near to act as a type locality, given the wide spread of the Gerrids, which are great travelers. The winged female in *structural* characters agrees with Uhler's description, but not so in color, as I shall explain more at length elsewhere. The species is a widespread Western form, which has come into my hands from various other sources. Several of the specimens had an alkaline crystalline accretion

on the hind tibiae and tarsi, doubtless from the highly charged water on which they lived.

Rasahus thoracicus.

One specimen from Santa Monica, California.

Zelus (Pindus) occiduus n. sp.

Belongs in the sub-genus *Pindus* of Stal, which is characterized by the possession of four black spines on the thorax, two lateral and two on the disc.

Differs from *Zelus (Pindus) socius* Uhler in having the 1st and 3d joints of the antennae subequal, the first a little over three times as long as the second, and the 3d somewhat less than three times the second. Proportion of antennal joints 1st: 2d: 3d:: 50: 16: 44. Third joint in male scarcely stouter than 2d and of even diameter throughout; not tapering.

Rostrum reaching to anterior coxae; joint 2 five times as long as 1 and more than six times as long as 3. Proportions: 1st joint: 2d: 3d:: 4: 20: 3.

Hemelytra with the main corial vein whitish.

Legs slender, femora thickened and slightly darker toward the distal end; femora of first pair of legs thickest and longest; of second pair, thinnest and shortest; hind femora intermediate in thickness and length.

Proportions:—Anterior femora: middle: posterior:: 5.1 mm.-5.6 mm.: 3.6 mm.-4 mm.: 5 mm.-5.4 mm.

Head, length: 2.6-2.5 mm.; prothorax, 2.4-2.1 mm.; scutellum, 1.2-1 mm.; abdomen, length from tip of scutel; 6.8-6.4 mm.; total length, 13-12 mm.; greatest breadth (abdomen) 2.6-2.4 mm.; length: breadth:: 5:1.

Described from two males taken by Prof. J. M. Aldrich at Owen's Lake, California, July 27, 1911. Cotypes in collections of J. M. Aldrich and mine.

Lygaeus reclivatus Uhler.

Owen's Lake, California, two specimens; Pyramid Lake, Nevada, one specimen.

Lygaeus bicolor H. S.

Santa Monica, California, three specimens.

Largus convivus Stal.

Santa Monica, California, two specimens.

Harmostes reflexulus Say.

Winnemucca Lake, Nevada, one specimen.

Alydus setosus Van Duzee.

Santa Monica, California, one specimen, apparently first record since the type.

Anasa ? obliqua Uhl.

Santa Monica, California, one specimen.

Brochymena quadripustulata Fabr.

One specimen from Brigham, Utah.

Antigeny in Nearctic Butterflies (Lepid.).

By HENRY SKINNER, M.D., Sc.D.

Antigeny has been defined as sexual dimorphism and it has the advantage of expressing the idea in one word. Many of our butterflies show marked differences in appearance between the sexes, of a secondary sexual character, and while there have been many theories to account for these differences, none of them appear to the writer to be very satisfactory or convincing. There is a great difference among the various species as to the degree or amount of antigeny shown. In some cases it is so great that the sexes of one species have not infrequently been described as totally different species and in other cases the differences between the sexes is slight or non-existent.

Examples of marked antigeny are shown in *Argynnis diana*, *Neophasia terlooti*, *Meganostoma carydice*, *Pieris amaryllis*, *Colias christina*, *Papilio turnus*, *Pamphila zabulon* and *hobomok* and others. If we include the Hesperidae about one seventh of the North American butterflies may be said to show antigeny. Whether these have any advantage in the struggle for existence or not, I will not discuss in this article.

In the large genus *Argynnis* there are a number of antigenetic species *diana*, *idalia*, *cybele*, *nokomis*, *leto*,